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TO: Margie Lopez-Read
Senior Environmental Scientist

FROM: Amanda Smith
Environmental Scientist

DATE: 27 April 2006

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SUBJECT: RESPONSE TO REVIEW OF ANNUAL MONITORING REPORT – CALIFORNIA RICE COMMISSION

On 30 December 2005, I received and subsequently reviewed the California Rice Commission's *Annual Monitoring Report (AMR)* submitted in compliance with the requirements of Resolution No. R5-2003-0105 *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands and Monitoring and Reporting Program Order No. R5-2004-0839*.

The CRC's second AMR submittal met the deadline in their rice specific MRP. Review of the AMR confirmed that the CRC monitored at the locations and performed the analyses of constituents outlined in their MRPP and key components of the report (data, lab sheets, etc) were complete.

Toxicity tests

The CRC conducted toxicity tests as required under their MRP for the three aquatic species and for sediment toxicity. Numerous incidents of algae toxicity were found as well as one incident of fathead minnow and two incidents of water flea toxicity. Table 1 (attached) details the CRC's toxicity incidents during 2005. In regards to toxicity test reporting, in all future communications reporting and in next year's AMR, the CRC should report all toxicity results as the percent difference from control.

TIE/Re-sampling and Other Follow-up

The CRC re-sampled when toxicity was found. To improve the readability of next year's AMR, I suggest that a table be added that details toxicity follow-up. This should include the interval between initial sampling and re-sampling, the date the CRC received notification from the lab of toxicity, the date the CRC notified the Regional Board (should be within 24 hr of lab notification), the date of the communications report (should be submitted within 1 week of known toxicity). An effort should be made to re-sample as quickly as possible since pesticide pulses may be short lived. For each incident of toxicity, the local ag commissioner should also be contacted, which the CRC did for the March 2005 algae toxicity but not uniformly throughout the entire season



The CRC had 21 communication report correspondence events during 2005. From discussions at a recent 28 March 2006 meeting, the CRC has contracted with consultant CH₂M Hill to help with communications reports. On 3 April, I met with the CRC and their consultants CH₂M Hill, and Kleinfelder, and outlined ways to improve communication reporting and lab quality control for the upcoming 2006 season.

One challenge encountered in 2005 was that the CRC and Regional Board staff continued to have different interpretations of the CRC's toxicity trigger for conducting a TIE. Based on the ambiguous trigger language in the CRC's QAPP, the CRC interpretation was that if toxicity was found in the initial sample, there was a re-sample and a TIE was conducted (if triggered) on the resample. Several meetings were held to discuss the issue. On 3 March 2006 a modification to the CRC's MRP was issued¹ for 2006. At four specific sampling events sufficient sample size must be collected to conduct a TIE on the initial sample, if triggered. The algae toxicity trigger for a TIE was also modified to 50% survival.

Pesticides

During 2005, the CRC monitored for two pyrethroid pesticides: lambda cyhalothrin and zeta cypermethrin. Results showed no detections except for 0.02 µg/l lambda cyhalothrin at CBD5 in June. The CRC reported the detection in a communications report and AMR. They discussed how during 2005 growers had problems with yellowstripe armyworm and used more of lambda cyhalothrin than a typical year to address the issue. Based on the Basin Plan², a the pesticide should be detected at no greater than 1/10th of the 96 hr LC₅₀. Looking back at ACQUIRE data evaluated when the rice specific MRP was established, it appears the lowest freshwater **96 hr** LC₅₀ was 0.21 µg/l (Bluegill). Thus the upper level trigger would be 0.021 µg/l.

General Parameters

Several general parameters including pH, dissolved oxygen and total dissolved solids were detected at levels of concern on several occasions as detailed in **Table 1**. Though some exceedances were acknowledged by communications reports, all exceedances require Regional Board notification, communications report, and follow-up discussion on what may have caused the exceedance. The AMR did a good job of graphing each general parameter with a discussion of any trends seen. For 2006, the amount of discussion should be expanded upon, especially whenever persistent trends are apparent.

Quality Control Findings

¹ 3 March 2006. Central Valley Regional Water Quality Control Board. Letter to Tim Johnson, CRC: Modification of Monitoring and Reporting Order NO. R5-2004-0839.

² From the Basin Plan: "For most pesticides, numerical water quality objectives have not been adopted. USEPA criteria and other guidance are also extremely limited. Since this situation is not likely to change in the near future, the Board will use the best available technical information to evaluate compliance with the narrative objectives. Where valid testing has developed 96 hour LC50 values for aquatic organisms (the concentration that kills one half of the test organisms in 96 hours), the Board will consider one tenth of this value for the most sensitive species tested as the upper limit (daily maximum) for the protection of aquatic life. Other available technical information on the pesticide (such as Lowest Observed Effect Concentrations and No Observed Effect Levels), the water bodies and the organisms involved will be evaluated to determine if lower concentrations are required to meet the narrative objectives."

Generally, the CRC meet the quality control requirements as outlined in their QAPP. There were a few quality control issues found in 2005 including failed toxicity controls, April field duplicates not being analyzed and pesticide surrogate recovery outside of acceptable criteria. When issues occurred the CRC actively worked with the labs to address the issue. As discussed with the CRC and their consultants at a 3 April meeting, during 2006 whenever a sample does not meet quality control requirements, the samples need to be re-run until quality is acceptable. Please continue to also submit reports from the lab discussing the issue, why it occurred and how they plan to ensure that it does not happen again. Data presented in the 2006 AMR should be flagged whenever it does not meet quality control standards.

UCD monitoring

The transmittal letter indicates that UC began startup monitoring in 2005 for total organic carbon, total nitrogen, inorganic carbon, some general parameters and *E. Coli*. Staff appreciates that UC shared this early data that should help us better understand the impacts of edge of field rice drainage on water quality. As the CRC is using the UC's data to comply with the MRP, the AMR should highlight any UC data that exceeds water quality objectives or trigger levels and provide a detailed discussion of what is being done to address any issues. Thus, for 2006 when the CRC becomes aware of any exceedances they should be prompted reported in a Communications Report. The AMR should also provide a detailed discussion of all (UC or CRC monitoring related) exceedances seen during the year including the follow-up actions planned by the CRC to address the issue.

Based on preliminary staff review of the UC startup data, staff suggests that the CRC write a communications report on the *E. Coli* issues³ seen in the 2005 startup monitoring. Also, for next years write-up in the AMR there should be a more detailed description of where the UCD monitoring occurred including a discussion of which types of rice operations, soil types, weather conditions, etc each field site represents.

In regards to the startup UC data it is not clear if they were collected following an approved quality assurance (QAPP). As I am the grant manager of this UCD grant, I know that as of mid April 2006 the grant does not yet have an approved QAPP in place. If in fact the data was collected without a QAPP, the data will need to be flagged. Staff would like to note that it greatly appreciates the good faith efforts of UC in conducting startup monitoring prior to grant approval. However, UC will be unable to recoup the costs associated with this data collection using grant funds.

Recommendations

For 2006, in the CRC's AMR and in any communications reports submitted, the CRC should strengthen discussion and interpretation of monitoring results as multiple years of data can be examined to look for trends. The CRC should review all data available relevant to rice field discharges in the Sacramento Valley including other collation groups, UC Davis irrigated lands

³ As the Basin Plan does not contain numeric objectives for *E. Coli*, the trigger for reporting is obtained through interpretation of the narrative toxicity objective that "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life" Basin Plan III-10.0. US EPA *Ambient Water Quality Criteria for Bacteria - 1986* provides a trigger level for reporting *E. Coli* of 1) if a minimum of not less than five samples equally spaced over a 30-day period are collected, levels shall not exceed a geometric mean of 126/100 ml and 2) **levels shall not exceed 235/100 ml in any single sample.**

monitoring, and Regional Board TMDL (ie propanil) monitoring results. This data should also be evaluated to see if they identify new issues that the CRC's monitoring did not pick up.

For any toxicity or pesticide related issue, the local Ag Commissioner should be consulted prior to submittal of the communications report since they may have important insight on pesticide use trends that may help explain the incident.

When any monitoring results indicate exceedances of water quality objectives the CRC should continue to report exceedances immediately and submit communications report(s) within one week of notification. Beyond conveying results, the communications reports should provide a discussion as to what may have caused the exceedance,

Overall the CRC did an excellent job of summarizing the 2005 monitoring results. As the AMR represents a significant undertaking, staff fully recognizes the amount of work and attention to detail that went into the CRC's AMR.

Attachment: *Table 1 Summary of Water Quality Objective Exceedences in the CRC's 2005 AMR*

cc: Rudy Schnagl, CVRWQCB
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